Former Williams Air Force Base

Boundaries:

The former Williams Air Force Base (WAFB) is located in Mesa, Arizona, approximately 30 miles southeast of central Phoenix. It is approximately 4,127 acres in size and the study area includes the entire Base. The site boundaries are Power Road to the west, Ray Road to the north, Pecos Road to the south, and Ellsworth Road to the east.

Site History:

- The base was constructed in 1941 and served as a training facility, primarily pilot training. At the time the base was constructed, the 4,059-acre WAFB site was surrounded by irrigated farmland and desert. Industrial activities at WAFB included heavy maintenance of aircraft and ground equipment in support of pilot training.

- The former WAFB played a strategic role in America's aviation history. Over a span of 52 years, more than 26,500 men and women earned their wings at Williams. Gearing up for the combat pilot demands of World War II, the Army Air Corps broke ground in southeast Mesa for its Advanced Flying School on July 16, 1941. In February 1942, the growing military base's name was changed to Williams Field to honor Charles Linton Williams, an Arizona-born pilot. The facility was redesignated as WAFB in January 1948. WAFB was the U.S. Army Corp's foremost pilot training facility, graduating more student pilots and instructors than any other base in the country and supplying 25 percent of the Air Force's pilots annually.

- Contaminants from base activities included organic solvents and paint strippers, petroleum spills, metal plating wastes, hydraulic fluids, pesticides, and radiological wastes. Discharges and disposals at WAFB have resulted in soil and groundwater contamination.

- Site investigations initiated in 1983 under the auspices of the Department of Defense Installation Restoration Program (IRP) identified thirteen potentially contaminated areas including: two fire training areas, a fuel storage area, two surface storm drainage areas, a hazardous material storage area, a landfill, a pesticide burial pit, a radiological disposal area, and four underground storage tanks.

- WAFB was placed on the National Priorities List (NPL) on November 21, 1989.

- Remedial investigations initiated under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) in 1989 discovered several new areas of contamination that were added to the existing list of sites.

- WAFB was closed in 1993, resulting in a loss of more than 3,800 jobs and $300 million in annual economic activity. After the announcement of closure in 1991, the community immediately began work to redevelop the base. Upon closing, WAFB was transferred to the Air Force Base Conversion Agency (AFBCA). AFBCA assumed responsibilities for the restoration and reuse of the base and worked with the Restoration Advisory Board (RAB) and Williams Redevelopment Partnership to maximize reuse of the land.

- For cleanup purposes, the former base was divided into six operable units (OU), OU-1 through OU-6. Each OU consists of many sites of potential concern; the following lists only the sites of primary interest for each OU.

    1. OU-1 contains the main Base landfill for which a record of decision (ROD) was signed in 1994. The remedy specified a permeable cap (soil) and monitoring wells. At the time of the ROD, only low levels of contaminants were present in the wells. In 1997, higher levels of contamination were discovered in the landfill monitoring wells and a follow-up remedial investigation (RI) was conducted in 2000.

    2. OU-2 addresses the groundwater and soil contamination at the Liquid Fuels Storage Area (ST-12). The results of the remedial investigation at ST-12 have confirmed that the primary contaminant is jet petroleum grade 4 (JP-4, jet fuel). There is a groundwater plume at ST-12 which resulted from the leakage of approximately one million gallons of JP-4. Rising groundwater in the area, 40 feet over the last ten years, has covered the fuel and smeared it across many feet of deep soil making access to the plume (for remediation) increasingly difficult. The ROD for OU-2 was signed in December 1992. The remedies agreed to in the ROD failed to achieve the desired result.

    3. OU-3 formerly addressed the vadose zone beginning 25 feet below land surface down to the water table at ST-12 which is now a part of OU-2. The primary site of concern at OU-3 now is the Fire Training Area Number 2 (FT-02). The 25,000 cubic yards of contaminated deep soils at the site were treated in place by enhancing natural bacterial breakdown of contaminants with bioventing. The ROD for OU-3 was signed in late June 1996. The standards agreed to in the ROD have not been achieved. However, the US Air Force (USAF), in accordance with new state rules has conducted a risk assessment which determined that the cleanup levels attained do not pose a risk to human health or environment.

    4. OU-4 includes South Desert Village (SDV) which is currently serving as student housing for Arizona State University (ASU) East. Beneath SDV is a former six-station skeet range which was demolished and graded in 1950, prior to construction of the SDV. Contamination in the form of lead pellets in soil associated with the former skeet range underlies 85 housing units in the SDV. Since complete removal of contaminated soils would have required demolition of this valuable housing, a compromise solution involved removal of the top six

inches of contaminated soil and installation of six inches of clean soil. The replacement soil is considered a protective cap over the remaining contamination, and will be subject to repair and maintenance, as well as land use restrictions in the form of a voluntary environmental mitigation and use restriction (VEMUR). The VEMUR defines the affected area as non-residential, and places deed restrictions to bind occupants to maintain the protective cap.

5. OU-5 was set up to address nine soil sites which were closed out through expedited removal fill actions. No groundwater contamination is known to exist at any of the OU-5 sites. The OU-5 ROD was signed in February 1998.

6. OU-6 was established to address three sites requiring additional investigation. The site of primary concern (site SS-17 Old Pesticide/Paint Shop) at OU-6 revealed soil contamination (dieldrin and volatile organic compounds). A removal action of dieldrin contaminated soil was completed and backfilled with clean soil following verification of clean up goals. The dieldrin contaminated soil is currently being treated with bioremediation.

Site Status:

- OU-1 contains Landfill 4 (LF-04). The landfill has been covered with a cap of two feet of clean soil and cobbles, placed on top of the clean soil. The groundwater is being monitored every six months. A declaration of environmental use restriction (DEUR) is in process and will be recorded for this site.

- OU-2 contains and addresses the groundwater and soil contamination at the ST-12. The Air Force and subcontractors are presently designing a new process to remediate the site. Additional cleanup efforts at the ST-12 site will include adding a thermal (hot air and steam) component to the ROD's approved remediation systems. The process is called thermal enhanced extraction (TEE).

- OU-3 primary concern is the Fire Training Area Number 2 (FT-02). Bioremediation utilized at the site did not attain residential cleanup levels. A ROD amendment is now required to approve the new risk assessed standards proposed by the USAF.

- OU-6 contains the Temporary Treatment Facility (TTF) which is an area that has received soil contaminated with dieldrin from the cleanup of the Old Pesticide/Paint Shop (SS-17). Bioremediation is being utilized to clean the contaminated soil but has not yet reached levels that are considered safe.

- Approximately 3,900 acres (94%) of the former base has been transferred to public or private ownership. The largest landowners of former WAFB land are: Williams Gateway Airport, Gila River Indian Community, and the Arizona State University East and Maricopa Community College campus.

- The Department of Defense is retaining 10.74 acres for the U.S. Army Reserves, and eight acres for continued military use by the U.S. Air Force. The base's Armstrong Laboratory Aircrew Training Research Facility will remain at WAFB.

Site Hydrogeology:

- The WAFB is located within the Salt River Valley in the Basin and Range province. The site is underlain by alluvial sediments comprising the upper, middle and lower aquifer units.

- The aquifers beneath the former Base consist of upper and lower zones that are separated by silty and/or clayey sediment. Aquifer interconnection has been identified on a localized, site-by-site basis. At ST-12, it has been determined that two aquifers exist, and that they are separated by a competent aquitard. The two aquifers will be referred to as the upper aquifer and deep aquifer. Both aquifers consist of interbedded, fine- and coarse-grained strata.

- The upper aquifer extends from the water table (currently between 185 and 205 feet bgs) to approximately 245 feet bgs. The upper aquifer has excellent water-bearing characteristics, but has a reduced ability to supply water because of overdrafting. Much of the water found in the upper aquifer, some of which is perched on low permeability strata, is of poor quality due to its origin as infiltration of irrigation water. Localized studies at the former base show groundwater flows to the east-southeast in the upper aquifer.

- Locally (at ST-12, SS-17, and LF-04) groundwater in the upper aquifer flows to the east-southeast. The flow direction of the upper aquifer has not changed even though groundwater elevations have increased more than 40 feet since 1989. Similarly, the hydraulic gradient has remained relatively stable throughout activities at the site. An average value for the hydraulic gradient across the entire site is 0.0055.

- The deep aquifer unit has historically been a major source of groundwater in the general vicinity of the former Base. Although it is classified as a fine-grained unit, local sand and gravel units greatly increase its water-producing capability. Deep-screened monitoring wells at the former Base show a general northward trend for groundwater flow.

- Water levels in the vicinity of the former Base have been depressed as a result of nearby groundwater supply demands. Measurement records from Base production wells show that water levels in the deep aquifer decreased approximately 30 feet between 1953 and 1961, and remained depressed until 1981 when water levels began to increase gradually. From 1989 through 1991, water levels increased 2.5 feet in the shallow wells, an average of 1.25 ft/yr. From 1992 through 2003, water levels rose an average of four ft/yr.

Contaminants:

The contaminants of concern include organic solvents and paint strippers, petroleum, metal plating wastes, hydraulic fluids, pesticides, and radiological wastes. Discharges and disposal at WAFB resulted in soil and groundwater contamination. The remaining groundwater contaminant issue is a plume of jet fuel contamination at ST-12. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

There is no known risk to human health at this time. All exposure pathways have been eliminated through remediation or restricted access/use. No groundwater wells are known to be impacted.

Community Involvement Activities

A RAB has been formed and meets on a semi-annual basis and is in the process of adding new community members.

Information Repository:

Interested parties can review site information at the information repository at the Williams Gateway Airport located at 5835 South Sossaman Road in Mesa, (480) 988-1013. Site files are also located at the ADEQ main office located at 1110 West Washington Street, Phoenix. Site information at ADEQ is available for review Monday through Friday from 8 a.m. to 5 p.m. To arrange for a time to review the public site file, please call the ADEQ Records Center (602) 771-4378 or (800) 234-5677 (Arizona toll free).

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*In Arizona, but outside the Phoenix area, call toll-free at (800) 234-5677.
**Call EPA's toll-free message line at (800) 231-3075.